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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/604,537  | 07/29/2003  | Ray F. Campbell      | BOE 0314 PA         | 1536             |
| 27256   | 7590        | 09/22/2004           | EXAMINER            |                  |
| ARTZ & ARTZ, P.C.<br>28333 TELEGRAPH RD.<br>SUITE 250<br>SOUTHFIELD, MI 48034 |             |                      | BELLAMY, TAMIKO D   |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2856                |                  |

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/604,537 | <b>Applicant(s)</b><br>CAMPBELL ET AL. |  |
|                              | <b>Examiner</b><br>Tamiko D. Bellamy | <b>Art Unit</b><br>2856                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-20 is/are allowed.
- 6) ☒ Claim(s) 1-3, and 7-11 is/are rejected.
- 7) ☒ Claim(s) 4-6 and 12-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horibata et al. (5,801,313) in view of van Seeters (5,283,528).

Re to claim 1, 8, and 9, as depicted in figs. 1b and 11, Horibata et al. discloses a housing (e.g. combination of substrates 2 and 3) and a fixed plate (71) in the housing (e.g. combination of substrates 2 and 3). Horibata et al. also discloses a movable plate (e.g. movable electrode 22/62) in substantially parallel relation to the fixed electrode (31/71). As depicted in fig. 11, the movable plate (e.g., movable electrode 62) is coupled to the housing along at least an edge. Horibata et al. discloses that an external force is applied to the capacitance sensor; and the electrostatic capacitance (C) is change between the electrodes (62 and 71) (col. 1, lines 60-67). Horibata et al. discloses that the electric signal representing the change in the electrostatic capacitance (C) is used as the output of the sensor and the acceleration is detected. (col. 1, lines 65-67; col. 2, lines 1-5). While, Horibata et al. does not specifically disclose that a transimpedance amplifier receives the charge displacement capacitance signal, Horibata et al. teaches that electric signal representing the change in electrostatic capacitance is obtained from the capacitance measuring circuit and the acceleration is detected (col. 1, lines 65-67, col. 2, lines 1-5).

Van Seeters discloses that the output of the capacitor(s) are converted in the transimpedance amplifier(s) (3) (col. 4, line 66-67, col. 5, lines 1-14). Therefore, to modify Horibata et al. by employing a transimpedance amplifier would have been obvious to one of ordinary skill in the art at the time of the invention since van Seeters teaches a capacitance measuring circuit having these design characteristics. The skilled artisan would be motivated to combine the teachings of Horibata et al. and van Seeters since Horibata et al states that his invention is applicable to a capacitive sensor and van Seeters is directed to a circuit arrangement for capacitors.

Re to claims 2 and 10, Horibata et al. discloses a capacitance measuring circuit and detecting acceleration. Horibata et al. lacks the detail of an analog-to-digital converter. Van Seeters discloses an A/D converter (5). Therefore, to modify Horibata et al. by employing an analog-to-digital converter would have been obvious to one of ordinary skill in the art at the time of the invention since van Seeters teaches a capacitance measuring circuit having these design characteristics. The skilled artisan would be motivated to combine the teachings of Horibata et al. and van Seeters since Horibata et al states that his invention is applicable to a capacitive sensor and van Seeters is directed to a circuit arrangement for capacitors.

Re to claims 3 and 11, Horibata et al. discloses a capacitance measuring circuit and detecting acceleration. Horibata et al. lacks the detail of time integrator. Van Seeters discloses an integrator (2)(col. 5, lines 15-36). Therefore, to modify Horibata et al. by employing a transimpedance amplifier would have been obvious to one of ordinary skill in the art at the time of the invention since van Seeters teaches a capacitance measuring

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circuit having these design characteristics. The skilled artisan would be motivated to combine the teachings of Horibata et al. and van Seeters since Horibata et al states that his invention is applicable to a capacitive sensor and van Seeters is directed to a circuit arrangement for capacitors.

Re to claim 7, Horibata et al. as depicted in figs. 1b and 11, the movable electrode is a flexible beam.

***Allowable Subject Matter***

3. Claims 15-20 are allowed.

Re to claim 15, the independent claim includes “ a linearizer receiving the integrated signal and generating a linearized acceleration signal “ in combination with the remaining claim limitation is not taught and/or made obvious by the prior art. van Seeters teaches the use on an integrator. However, van Seeters does not teach that the linearizer receives the integrated signal.

4. Claims 4-6, 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (571) 272-2190. The examiner can normally be reached on Monday - Friday 6:30 AM to 3:30PM.

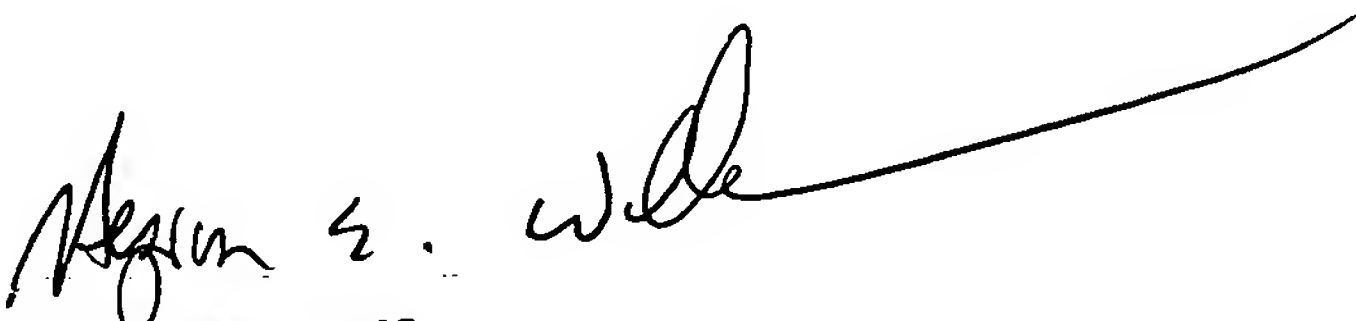
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamiko Bellamy

T.B.  
September 14, 2004

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
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